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HOLTSVILLE, NY 11742

EXAMINER

LEE, DIANE I

ART UNIT	PAPER NUMBER
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2876

DATE MAILED: 10/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/090,653

Applicant(s)

YAVID ET AL.

Examiner

D. I. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-26 and 30-46 is/are rejected.
- 7) ☒ Claim(s) 14 and 27-29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Claims 1-46 are presented for examination.
2. Receipt is acknowledged of the Preliminary Amendment filed 04 March 2002.
3. Acknowledgement is made that this application is a continuation-in-part of U.S. Patent Application Serial No. 09/604,197 filed 27 June 2000 (U.S. Patent not yet issued); which is a continuation-in-part of U.S. Patent Application Serial No. 09/227,245, filed 08 January 1999 (abandoned); which is a continuation-in-part of U.S. Patent Application Serial No. 08/794,782 filed 24 September 1997, now issued as U.S. Patent 6,119,944.

### *Information Disclosure Statement*

4. Applicant indicated in the information disclosure statement (IDS) filed 13 February 2003 contains two sheets. However, the examiner can only find the first sheet. If the second sheet is actually contained in this IDS, please transmit the second sheet in the next communication or an appropriate correction is required.

### *Additional Remark(s)*

5. Upon review of the parent applications Serial Nos. 09/227,245, 08/794,782, and 09/604,197, the examiner has determined that the currently claimed invention has not been "wholly" disclosed until the previous parent current application (i.e., applications Serial No. 09/604,197 filed 27 June 2000). Specifically, "displaying image during a display mode feature" in an electro-optical assembly having a reading mode and a display mode and "an array of VCSES laser" are not found in the other parent applications (i.e., parent applications Serial Nos. 09/227,245 and 08/794,782). Therefore, the effective filing date for the currently claimed invention is 27 June 2000.

### *Claim Objections*

6. Claim 22 is objected to because of the following informalities:

- (a) Claim 22: claim 22 depends from itself. "claim 22" should be changed to --claim 21--.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. **Claims 1, 3-5, 7, 9, 11-12, 15, 17, 24, 30, 34, and 37-39 are rejected under 35**

**U.S.C. 102(b) as being anticipated by IEEE [Optical Raster Scanning Display Based on Surface-Micromachined Polysilicon Mirrors-referred as IEEE].**

**Re claims 1, 7, 9, 11-12, 15, 34, 37-39:** IEEE teaches that the raster-scanning display system includes a support (not specifically shown), an energizable laser mounted on the support for emitting a laser beam (see figure 1) toward the target and provides a raster pattern of scanning lines that covers an area of the viewing surface, and wherein the scanner includes a first scan mirror (a fast circular mirror) for horizontal scanning (sweeping the laser beam along a first direction over the target, the fast mirror is driven at its resonant frequency or a first frequency, which is in on the order of 4.7 kHz, see the abstract) and a second scan mirror (a slow circular mirror, the slow mirror is driven below its resonant frequency or at a second frequency, see the abstract ) for vertical scanning (sweeping the laser beam along a second

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direction orthogonal to the first direction over the target). The mirrors are nearly circular so that each mirror provides angular distances wherein the first angular distance is greater than the second angular distance (3 cm horizontal by 2.8 cm vertical raster scan is presented, see figure 2 for example). The IEEE states that the mechanical instability of the first mirror causes overlap scan lines and distorting the image. To over the mechanical inaccuracy, the scan pattern is controlled by selectively switching the light source on and off which obviously teaches that the raster-scanning display system includes a controlling means operatively connected to, and operative for selectively energizing the laser to generate individual light pixels at the selected position, and at a refresh rate at which pixel persist to enable the eye to steadily view the image comprises of a light pattern of the pixels on the target (see 4<sup>th</sup> paragraph).

**Re claims 3-4:** due to the fact that the fabrication of the mirrors in the raster scanning system can be fabricated in either a single chip or a dual chip, the would have to be a connector means on the support for enabling the module to electrically connected to another support (see figures 2, 7, 9).

**Re claim 5:** Although IEEE [Optical Raster Scanning Display Based on Surface-Micromachined Polysilicon Mirrors] states the first frequency is driven at its resonant frequency, which is on the order of 4.7 kHz, and a second scan is driven below its resonant frequency (i.e., 1.14 kHz) or at a second frequency. Therefore, the first and the second frequencies are on the order of claimed range.

**Re claim 17:** the fact that figure 10 shows an image containing the font characters "UCD, the controller is operatively connected a memory (not shown) having stored fonts and the timing data as to when to energize and de-energize to display the image as font characters.

**Re claim 24:** the light patter constitutes a generally rectangular display (see figures 8 and 10).

**Re claim 30:** the laser and the scanner for sweeping the laser beam are mounted on the common support to constitute a module (see figures 2 and 7).

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9. **Claims 43-45 are rejected under 35 U.S.C. 102(e) as being anticipated by Kitamura et al. [US 5,986,996-referred as Kitamura].**

Kitamura discloses an optical pick-up and optical recording system having at least two semiconductor laser disposed adjacent to one another, each laser capable of producing a light beam of generally circularly-symmetric cross-section (see col. 30, lines 6+ and figures 8-11, 17); a means 11 for activating the two adjacent lasers for producing a single beam spot which is generally elongated in the direction of the x-axis, or the y-axis; or at an angle between the x-axis and y-axis (see col. 27, lines 7+). Said laser is a VCSEL disposed on a common semiconductor substrate (see col. 14, lines 5+). The array including a plurality of columns of individual lasers, which are staggered with respect to each adjacent column (see figures 8-11, 17).

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. **Claims 2, 6, 10, 16, 18, 26, 31-33, and 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over IEEE [Optical Raster Scanning Display Based on Surface-Micromachined Polysilicon Mirrors].** The teachings of IEEE have been discussed above.

**Re claims 2 and 16:** although IEEE shows the stationary mirror (output mirror) mounted on the support for reflecting the beam from the second mirror, IEEE does not explicitly show the stationary or fold mirror mounted on the support for reflecting the beam from the first scan mirror to the second scan mirror, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide a station mirror to between the first and second mirror to further reduce the dimension of the support.

**Re claim 6:** IEEE does not explicitly teach the claimed shape and dimension of the support.

It would have been obvious modification to an artisan of ordinary skill in the art at the time the invention was made to modify the shape and size of the support of IEEE [Optical Raster Scanning Display Based on Surface-Micromachined Polysilicon Mirrors] when fabricating the display system during manufacturing process in order accommodate the specific package requirement, manufacturing cost, and etc.

**Re claims 10:** the scan pattern is controlled by selectively switching the light source on and off which obviously indicates that the raster-scanning display system includes a controlling means operatively connected to, and operative for selectively energizing the laser to generate individual light pixels at the selected position (i.e., selectively setting a predetermined time intervals of energizing the laser). However, IEEE does not specifically points out that the selectively setting performed by the user.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate a user setting feature in the teaching of IEEE in order for user to further reduce the jitter characteristics of the image

**Re claim 26:** although IEEE is silent with respect to the screen having an optical filter, an optical filter to enhancing a display image is old and well-known, therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide an optical filtering means in the teaching of IEEE to further improve the quality of the display image.

**Re claim 31:** although IEEE does not explicitly states the relative size between the screen area and the module, one of ordinary skill in the art would have recognized that providing the specific displaying area would involve the optic elements and characteristics in the module (i.e., dimension of the mirrors, the type of lens utilized in the module, and etc.), thus it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to modify the teaching of IEEE to have a predetermined screen area relative to the module.

**Re claims 32-33:** although IEEE teaches a screen having a front surface and a rear surface, IEEE does not teach rear projection of the laser beam.

A rear projection technique is old and well known in the displaying art to compact the image projecting distance, therefore, it would have been obvious modification to an artisan of ordinary skill in the art at the time the invention was made to have a rear projection screen in order to provide a smaller and simplified imaging display system.

**Re claim 18:** although IEEE does not specifically teaches that the light source is a non-laser light.

It is old and well-know in the scanning art to provide the light source other then laser light, therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide other types of illuminating means, such as LED, in order to reduce the power consumption.

**Re claim 35:** IEEE teaches the fabrication of the module can be smaller size, mass, and power consumption, and can be more readily integrated with actuator in more complete integration simplifies



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packaging. Thus, having an activating means to provide a plurality operating position would have been an obvious extension taught by IEEE.

**Re claim 36:** although IEEE does not teaches the specific mounting of the display panel, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide any specific design of display mounting to accommodate and enhance the viewing position.

**13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over IEEE in view of Kajiki [Autostereoscopic 3-D video Display using Multiple Light Beam with Scanning].**

The teachings of IEEE have been discussed above.

IEEE does not teach the module having an analog video line for providing a video signal to project two-dimensional video image.

Kajiki teaches a 3-D display technique having the claimed features (see figures 1-10).

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the teaching of Kajiki in the teachings of IEEE in order to provide 3-D video image for greater displaying effect.

**14. Claims 13 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over IEEE [Optical Raster Scanning Display Based on Surface-Micromachined Polysilicon Mirrors] in view of Plesko [US 5,506,394].** The teachings of IEEE have been discussed above.

**Re claims 13 and 19-22:** Although IEEE states that the module can be fabricated to have smaller size, mass, and power consumption, and can be more readily integrated with actuator, electronics, light sources, lenses, and other optical elements, and more complete integration simplifies packaging, reducing the manufacturing cost; IEEE fails to teach the specific size, shape, and characteristics of the housing.

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Plesko teaches a scanning device having a housing sized and shaped to provide the ergonomic benefits of a pen or wand (see the abstract). The device having a transceiver for transmitting the receiving data by wireless transmission to a remote host, a keyboard for entering data, wherein the display includes a plurality of display areas (image output displaying area and a display 202 for providing human readable output from scanned bar code), and a power source such as a battery supported by the housing (see col. 8, lines 16+).

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to integrate the teachings of IEEE into a scanning device, as taught by Plesko, in order to provide more complete integration simplifies package for displaying and reading the image.

**Re claim 23:** IEEE does not disclose a single scanning mirror operative for moving the scan mirror along a plurality of direction.

Plesko discloses the claimed feature (see figures 9-20).

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate a single scanning mirror operative for moving the scan mirror along a plurality of direction, as taught by Plesko, in the teachings of IEEE to further reduce the size of the module.

**15. Claims 25 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over IEEE [Optical Raster Scanning Display Based on Surface-Micromachined Polysilicon Mirrors] in view of Plesko [US 5,506,394] and MEM's the word for optical beam manipulation by Lau [cited by the applicant-referred as Lau].** The teachings of IEEE and Plesko have been discussed above.

IEEE teaches the display system in which the laser beam is projected onto a display surface as individual light pixels at a refresh rate at which the pixels persist to enable the eye to steadily view the image comprised of a light pattern on a display surface.

Plesko discloses an arrangement of the scanning device is for electro-optically reading indicia. The device having a hand-held housing, a battery-powered module supported by the housing (see col. 8, lines 16+), the module including an energizable laser for emitting a laser beam, a scanner for sweeping the laser beam, an a controller operatively connected to, and operative for energizing, the laser in a reading mode in which the laser beam is swept across the indicia (see col. 7, lines 56+). The scanning device having a switch 2 for manually selecting one of various scanning operation (see col. 15, lines 61+). The scanning device can also be used as a dynamic laser highlighter by displaying spots, elliptical, and line scan pattern.

IEEE as modified by Plesko does not explicitly discloses an arrangement of the scanning device combined for electro-optically reading indicia and for displaying an image for viewing by a human eye and a plurality of additional energizable laser.

Lau discloses the claimed arrangement (see figures 8, 10 and 12 for example). Lau teaches in figure 12 that a plurality of additional energizable laser of the same wavelength for increasing the number of the light pixels without having to increase rage at which the scanner sweeps the respective laser beam.

It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide a dual arrangement, as taught by Lau, in order to display the bar code image and electro-optically read said display image.

**16. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamura.**

The teachings of Kitamura have been discussed above.

Kitamura does not explicitly teach the step of disabling a column of individual laser if a laser in such column is defective.

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However, the fact that lasers are optimally selective and can be easily controlled, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to recognized that specific column of laser can be disable in order to provide a highly reliable optical system.

### ***Double Patenting***

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. **Claims 1-46 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 18-35 of copending Application No. 09/604,197.** Although the conflicting claims are not identical, they are not patentably distinct from each other because applicant's claimed invention in the instant application are obvious modification from the claimed invention of the parent application, i.e., a device having a controller operative for deenergizing the lasers at selected positions of the laser beam to display bit mapped two-dimensional image is obviously equivalent to the instant claimed invention. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to recognize that the scope of the current claimed invention obviously encompasses the claimed invention of copending Application No. 09/604,197.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

*Allowable Subject Matter*

19. Claims 14 and 27-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter: the best prior art of the record, IEEE, Plesko, Lau, Kajiki, and Kitamura, alone or in combination, fails to teach the a display having an optically diffusive property to render the image visible on a front surface of the screen and movable to a deployed position; the controller emerging the laser at selected beam to depict a cursor that is movable across the light pattern and adapt to changing the image size of the light pattern as a function of screen size and position; and an ambient sensing element to provide brightness adjustment on the screen, as set forth in the claims.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. I. Lee whose telephone number is 703-306-3427. The examiner can normally be reached on Monday through Thursday from 5:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee can be reached on 703-305-3503. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



D. I. Lee  
Primary Examiner  
Art Unit 2876

D. L.